

REMARKS

Claims 1-30 are pending while the same stand rejected under 35 U.S.C. §102(e). Applicants cordially thank the Examiner for the opportunity to discuss the same via teleconference on Tuesday, September 9, 2003. No claims have been amended leaving claims 1-30 pending upon entry of the present amendment.

Drawing Objections

The drawings stand objected because the Examiner alleges that Figures 1 and 2 should be designated by a legend such as --Prior Art--since that which is old is illustrated. Applicants acknowledge the Examiner's objection, however, it is respectfully submitted that that which is old is not illustrated, as Figure 5 is a flow chart illustrating an exemplary embodiment of a method for obtaining a scanned projection radiograph and a CT scan image from the CT scanner depicted in Figure 1. More specifically, Figures 1 and 2 illustrate an exemplary embodiment of an apparatus configured to obtain a scanned projection radiograph and a CT scan image. Furthermore, If Applicants indicated Figures 1 and 2 as -- Prior Art -- as suggested, Applicants would in effect preclude or prejudice any opportunity to file an application and obtain a patent directed to such an apparatus by indicating the same as prior art. Accordingly, it is respectfully requested that the objection to Figures 1 and 2 be withdrawn.

Specification Objections

The disclosure stands objected to because the Examiner alleges that the "Brief Description of the Drawings" should indicate that Figures 1 and 2 are -- Prior Art--. It is respectfully submitted for the reasons discussed above, that Figures 1 and 2 should not be classified as prior art. Thus, it is respectfully requested that the objection to the specification be withdrawn.

Claim Rejections -35 USC § 102

Claims 1-8 and 10-30 stand rejected under 35 U.S.C. §102(e) as being anticipated by Hsieh et al. (U.S. Pat. No. 6,366,638 B1). Applicants respectfully traverse.

Regarding claims 1, 10, 19, 24 and 29-30, the Examiner alleges that Hsieh teaches a method for generating a plurality of clinically useful images in a short time frame using a single imaging system, the method (abstract) comprising:

generating a scout image configured to prescribe a target image (column 2 line 52+);
processing said scout image to generate an enhanced scout image (column 2 line 60+);
and

displaying said enhanced scout image and said target image, wherein said enhanced scout image (column 4 line 8+) and said target image are clinically useful images for diagnostic purposes provided by the single imaging system.

To anticipate a claim under 35 U.S.C. § 102, a single source must contain all of the elements of the claim. *Lewmar Marine Inc. v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 1007 (1988).

More specifically, Hsieh et al. disclose that typically an urology x-ray examination can take up to five hours to complete and that a series of x-ray films need to be taken prior to injecting contrast media into a patient and following uptake of the contrast media. The protocol requires a combined set of **planar x-ray films** and CT scans (CT helical scans or scout angle) because a CT scanner and an x-ray are used to improve diagnostic accuracy and improve the examination time. This is because known CT scout images include dark bands near high-density structures, e.g., bones. These dark bands, or artifacts, prevent accurate assessment of the patient's pathology when the artifacts are near contrast filled vessels. Col. 2, lines 6-35.

In particular, Hsieh et al. teaches away in that they disclose that the x-ray device can be eliminated and the CT scanner can be solely utilized to generate CT scout images. Col. 2, lines 44-45. By utilizing enhanced scout images overshoot and undershoot are essentially eliminated, and the image does not appear to be artificial; but has a "look" of a typical x-ray film, thus allowing elimination of the x-ray device. Col. 6, lines 52-55.

Furthermore, Hsieh et al. disclose that an associated cathode ray tube display 42 allows the operator to observe the reconstructed image and other data from computer 36. The other data referred to is data entered by an operator via console 40 via a keyboard. Col. 4, lines 8-12. Thus, Hsieh et al. do not disclose displaying said enhanced scout image and said target image as recited by the Examiner.

It is respectfully pointed out that "target image" as claimed in independent claims 1, 10,

19, 24 and 29-30 is well known in the pertinent art and is defined as a "CT tomographic axial/helical" image in the specification at the top of page 7 as originally filed.

Hsieh et al. do not teach or suggest generating a scout image configured to prescribe a target image; . . . and displaying said enhanced scout image and said target image, wherein said enhanced scout image and said target image are clinically useful images for diagnostic purposes provided by the single imaging system, as claimed in independent claim 1 and similarly claimed in independent claims 10, 19, 24 and 29-30. Thus, claims 1, 10, 19, 24 and 29-30, including claims depending therefrom, i.e., claims 2-9, 11-18, 20-23, and 25-28, define over Hsieh et al.

Regarding claims 3, 12, 20 and 25, the Examiner alleges that Hsieh et al. teach that said enhanced scout image is generated as in a planar x-ray developed film (well-known, column 2 line 6+, column 6 line 50+). Applicants respectfully traverse.

It is respectfully submitted that Hsieh et al. merely disclose that "the image does not appear to be artificial; but has a "look" of a typical x-ray film." (Emphasis added.) Col. 6, lines 53-55. Hsieh et al. do not teach or suggest wherein said enhanced scout image is generated as in a planar x-ray developed film, as in claim 3 and similarly claimed in claims 12, 20 and 25. Thus, claims 3, 12, 20 and 25 define over Hsieh et al. for this reason as well.

Regarding claims 4, 13, 21, and 26, the Examiner alleges that Hsieh et al. teach that said enhanced scout image is at least one of transferred and archived via propagation of an electrical signal representative thereof. (column 2 line 49+). Applicants respectfully traverse.

Hsieh et al. merely disclose that CT system 10 includes a computer program residing on a computer-readable medium within mass storage 38 for reconstructing the image. A plurality of records of projection data for a plurality of projection views are used to reconstruct a plurality of records of scout images. Col. 7, lines 7-10. There is no teaching or suggestion of the **enhanced scout image** is at least one of **transferred and archived** via propagation of an electrical signal representative thereof as alleged by the Examiner. Thus, claims 4, 13, 21, and 26 define over Hsieh et al. for this reason as well.

Regarding claims 5, 14, 22 and 27, the Examiner alleges that Hsieh et al. teach that after

said propagation of an electrical signal representative thereof, said enhanced projection radiograph is generated as in a planar x-ray developed film (well-known, column 2 line 6+, column 6 line 50+). Applicants respectfully traverse.

For the reasons described with respect to claims 3, 12, 20 and 25 above, it is respectfully submitted that claims 5, 14, 22, and 27 define over Hsieh et al. for the same.

Regarding claims 6, 15, 23 and 28, the Examiner alleges that Hsieh et al teach that said generating said scout image acts as a localizer in obtaining said target image in addition to serving in generating an x-ray radiograph (column I line 62+). Applicants respectfully traverse.

First, it is respectfully noted again that Hsieh et al. teaches away from utilizing the CT scanner for anything other than generating CT scout images. See Col. 2, lines 44-45. Second, Hsieh et al. only teach generating an enhanced scout image that "looks" like a typical x-ray film so that a separate x-ray device can be eliminated for use in an urology examination. It is respectfully pointed out that Applicant describes a method and apparatus (in the specification) for use during trauma, for example, so that a patient isn't required to go or wait for a rad room on top of waiting for a CT scan. Lastly and again, Hsieh et al. only disclose displaying the reconstructed image on display 42. Col. 4, lines 10-11.

Thus, claims 6, 15, 23 and 28 define over Hsieh et al. for this reason as well.

Regarding claims 7 and 16, the Examiner alleges that Hsieh teaches that said target image is a CT scan image (column 2 line 49+). Applicants respectfully traverse for reasons of record and cited above.

Regarding claims 8 and 17, the Examiner alleges that Hsieh et al. teach that obtaining projection data for at least one scout scan; and modifying said projection data utilizing a deconvolution kernel to generate said enhanced scout image (column 2 line 49+). It is respectfully pointed that claims 8 and 17 depend from claims 1 and 10, respectively, which are submitted as being allowable for defining over Hsieh et al. Furthermore, obtaining and modifying projection data to generate an enhanced scout image does not cure the deficiencies noted above with respect to Hsieh et al.

Claims 1, 9-10, 19, 24 and 29-30 stand rejected under 35 U.S.C. §102(e) as being anticipated by Hsieh et al. (U.S. Pat. No. 6,393,090 B1) (hereinafter the "'090 patent"). Applicants respectfully traverse.

Regarding claims 1, 9-10, 19, 24 and 29-30, the Examiner alleges that Hsieh teaches a method for generating a plurality of clinically useful images in a short time frame using a single imaging system, the method comprising:

generating a scout image configured to prescribe a target image (figure 4); processing said scout image to generate an enhanced scout image (figure 4); and

displaying said enhanced scout image and said target image (figure 4), wherein said enhanced scout image and said target image are clinically useful images for diagnostic purposes provided by the single imaging system (figure 4).

The '090 patent discloses a method for generating depth information images of an object using a computed tomography system by performing multiple scout scans of the object, generating a scout image for each scout scan, and displaying the scout images from each scout scan at least once. As a result, the multiple scout images contain depth information of anatomical objects and 3D images are rapidly generated without increasing the cost of the system. (See Abstract).

In particular, the '090 patent discloses that a single scout image is generated by fixing the position of the x-ray source and translating the object in a z-axis direction. As a result, the scout image is similar to a plain radiography image. Using the scout image, an operator may identify anatomical landmarks so that proper techniques may be selected for different areas of the object. However, as a result of generating the scout image from a single projection angle, no depth information regarding the object anatomy is provided. Col. 1, lines 48-56.

Therefore, the '090 patent teaches methods to generate a scout image with depth information. Specifically, each scout scan is sequentially displayed, for example on display 42, at least once. In one embodiment, where two scout images are generated, the first scout image is displayed and then the second image is displayed. To generate a 3D effect image, system 10 rapidly alternates between the two scout images. For example, each scout image may be displayed in a rapid cine sequence, i.e., display of first image, second image, first image, second image, etc. on display 42 so that a 3D visual effect is generated. Col. 3, lines 23-32. Therefore, the '090 patent merely teaches displaying a scout image such that it provides better depth

information within the scout image regarding the object of anatomy.

In another method, to generate at least one depth information scout image, system 10 performs two scout scans. Specifically, a first scout scan is performed at a first projection angle and a second scout scan is performed at a second projection angle, wherein the first projection angle is not equal to the second projection angle. For example, by performing the first scout scan at a 70 degree projection angle and the second scout scan at a 90 degree projection angle, a depth information scout image may be generated. After processing the scan data to generate a first scout image and a second scout image, the scout images may be alternatingly [sic] displayed on display 42. Col. 3, lines 44-55.

The '090 patent includes other methods for providing depth information in scout images including: a 3D shaded image generated using the data from the intersection of at least two scout scans, stereo-pair views used to communicate depth information, scan data taken at two different angles overlaid and displayed simultaneously using different colors, for example, red and green or red and blue, for each image viewing the combined image and perceived depth information, via glasses, for example, a red filter in front of one eye and a green or blue filter in front of the other eye so that each eye sees only one of the scout images, and an algorithm performing the fusion of at least two scout scans into one viewable scout image instead of the human brain. Col. 3, line 60 – Col. 4, line 23. However, there is no teaching or suggestion that the scout image having depth information and a target image are displayed, as both are clinically useful from a single imaging system.

The '090 patent does not teach or suggest generating a scout image configured to prescribe a target image; . . . and displaying said enhanced scout image and said target image, wherein said enhanced scout image and said target image are clinically useful images for diagnostic purposes provided by the single imaging system, as claimed in independent claim 1 and similarly claimed in independent claims 10, 19, 24 and 29-30. Thus, claims 1, 10, 19, 24 and 29-30, including claims depending therefrom, i.e., claims 2-9, 11-18, 20-23, and 25-28, define over the '090 patent.

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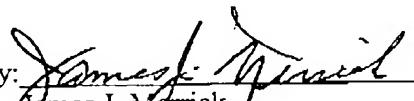
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Conclusion

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

In the event the Commissioner of Patents and Trademarks deems additional fees to be due in connection with this application, Applicants' attorney hereby authorizes that such fees be charged to Deposit Account No. 07-0845 maintained by Applicants' Assignee.

Respectfully submitted,

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